

EXHIBIT C

November 14, 2019

Rachel Miller et al. v. Hughs

**United States District Court for the Western District of Texas
Austin Division**

Expert Report of Jonathan Rodden, PhD

**737 Mayfield Avenue
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Jonathan Rodden, PhD

I. INTRODUCTION AND SUMMARY

Texas Election Code § 52.091(b) dictates that candidates who share the party label of the winner of the most recent Texas gubernatorial election must be listed first on the ballot for each office on the general election ballot. A large body of literature in the social sciences indicates that when a candidate is listed first on a ballot, he or she typically receives an electoral advantage. In states where the name order is randomized in a way that facilitates strong causal inference, there is strong and consistent evidence that the first-listed candidate receives an advantage in high-profile presidential, U.S. Senate, and gubernatorial races. Moreover, it is clear from this large body of academic literature that ballot order effects are substantially larger in “down-ballot” races about which voters have less information, and where the names of the candidates are less familiar to voters.

Texas does not rotate the order of names on ballots across precincts or counties within races in general elections. The only variation in ballot order is over time, when the partisanship of the governor changes. But given what we already know about ballot-order effects, one would expect to see that when the ballot order shifts from favoring one party to the other due to a change in the partisanship of the governor, on average we should observe an increase in the vote share of the favored party across a wide range of races. Moreover, if Texas is like other states, we should expect to see that this effect is largest in the so-called “down-ballot” races in which voters typically have less information about the candidates. Following this logic, I have been asked by counsel for Plaintiffs in this case to examine the extent to which patterns of election results in Texas in recent decades are consistent with the findings of the literature on ballot order.

I do so with two different types of data. First of all, I build a dataset from historical Texas election archives and examine aggregate election results for statewide races from 1970 to the

present. During this period, due to changes in the partisanship of the governor, there were six distinct periods of ballot order primacy. Democrats were listed first from 1970 until 1978. Republicans were listed first in 1980 and 1982, then Democrats again in 1984 and 1986, Republicans in 1988 and 1990, Democrats in 1992 and 1994, and then Republicans for a long period stretching from 1996 to 2018. Other things equal, I find that Democratic candidates received higher vote shares for a wide range of offices during the periods when they were listed first, and Republicans received higher vote shares during the years in which they were listed first.

Second, I use *county-level* election results published by the Texas Secretary of State that cover a wider range of elections, including legislative and other local races, but county-level data are only available for the period from 1992 to 2018. The advantage of the county-level data set is its richness and granularity, but it only allows me to examine the two most recent periods of ballot order: Democratic primacy from 1992 to 1994, and Republican primacy from 1996 to the present.

Utilizing these data sources, I specifically find that:

1. Based on analysis of aggregate general election results from 1970 to 2018, other things equal, the vote shares of Democratic candidates were higher by 4.6 percentage points when they were listed first on the ballot, while vote shares of Republican candidates were higher by 3.7 percentage points in elections when they were listed first on the ballot.
2. In down-ballot statewide races, the estimate of this difference is 6.1 percentage points for Democratic candidates and 4.6 percentage points for Republican candidates.
3. Based on *county-level* analysis comparing elections held under Democratic ballot primacy in 1992 and 1994 with those held under Republican primacy thereafter, other things equal, the vote shares of Democratic candidates were higher by 4.9 percentage

- points when they were listed first, and the vote shares of Republican candidates were higher by 4.3 percentage points when they were listed first.
4. In the county-level analysis, I distinguish between state-wide down-ballot elections, like Attorney General and Railroad Commissioner, and non-statewide elections for various positions that are elected from specific counties or geographic districts, for instance State Senator or District Judge. In statewide down-ballot races, the vote shares of Democratic candidates were higher by 7.3 percentage points when they were listed first, and the vote shares of Republican candidates were higher by 5.9 percentage points when they were listed first.
 5. In elections for various non-statewide races, the vote shares of Democratic candidates were higher by 2.1 percentage points when they were listed first, and vote shares of Republican candidates were higher by 1.8 percentage points when they were listed first.

Furthermore, I have been asked to use contemporary data to analyze whether it is likely that a reform in ballot order practices would have a substantial impact on election outcomes in Texas. To answer this question, I draw upon the recent reform of ballot order practices in North Carolina, which like Texas, had a longstanding practice of placing the names of members of the party that won the most recent gubernatorial election at the top of the ballot. In 2016, after losing the gubernatorial election, the outgoing Republican governor signed a law that replaced this practice with a modified alphabetical ordering. This produced a valuable experiment: I am able to compare the same precincts in 2016, when Republicans were always listed first, and in 2018, when Republicans were listed first in only half of the precincts. I compare legislative election outcomes

for the same races in 2016 and 2018, and I find that the change in ballot order had a large effect on outcomes. Specifically,

1. I compare precincts where Republicans were listed first in both 2016 and 2018 with those where they were listed first in 2016 but not 2018. The increase in Democratic vote share from 2016 to 2018 was larger by 1.5 percentage points in the latter group of precincts.
2. This effect is much larger in “open” seats where no incumbent was running (8 percentage points), and in races where the exact same pair of candidates was running in both 2016 and 2018 (4 percentage points).

In sum, I conclude that in Texas, changes in the partisanship of ballot order are associated with discernable changes in election outcomes. And drawing on quasi-experimental evidence from North Carolina, I conclude that a transition from a system that consistently favors one party, to a system that treats both parties the same, is likely to have an impact on election outcomes. These findings are broadly consistent with the growing scientific consensus about name-order effects in elections and surveys.

II. QUALIFICATIONS

I am currently a tenured Professor of Political Science at Stanford University and the founder and director of the Stanford Spatial Social Science Lab (“the Lab”)—a center for research and teaching with a focus on the analysis of geo-spatial data in the social sciences. In my affiliation with the Lab, I am engaged in a variety of research projects involving large, fine-grained geo-spatial data sets including ballots and election results at the level of polling places, individual records of registered voters, census data, and survey responses. Prior to my employment at Stanford, I was the Ford Professor of Political Science at the Massachusetts Institute of

Technology. I received my Ph.D. from Yale University and my B.A. from the University of Michigan, Ann Arbor, both in political science. A copy of my current C.V. is included as Appendix B.

In my current academic work, I conduct research on the relationship between the patterns of political representation, geographic location of demographic and partisan groups, and the drawing of electoral districts. I have published papers using statistical methods to assess political geography, balloting, and representation in a variety of academic journals including *Proceedings of the National Academy of Science*, *American Economic Review Papers and Proceedings*, the *Journal of Economic Perspectives*, the *Virginia Law Review*, the *American Journal of Political Science*, the *British Journal of Political Science*, the *Annual Review of Political Science*, and the *Journal of Politics*. One of these papers was recently selected by the American Political Science Association as the winner of the Michael Wallerstein Award for the best paper on political economy published in the last year.

I have recently written a series of papers, along with my co-author, Jowei Chen, using automated redistricting algorithms to assess partisan gerrymandering. This work has been published in the *Quarterly Journal of Political Science* and *Election Law Journal*, and it has been featured in more popular publications like the *Wall Street Journal*, the *New York Times*, and *Boston Review*. I have recently completed a book, published by *Basic Books* in 2019, on the relationship between political districts, the residential geography of social groups, and their political representation in the United States and other countries that use winner-take-all electoral districts. This book was reviewed in the *New York Times*, *Wall Street Journal*, *New York Review of Books*, *The Economist*, and *The Atlantic*, among other outlets.

I have expertise in the use of large data sets and geographic information systems (GIS), and conduct research and teaching in the area of applied statistics related to elections. My PhD students frequently take academic and private sector jobs as statisticians and data scientists. I frequently work with geo-coded voter files and other large administrative data sets, including in a pair of recent collaborative papers with colleagues in medicine, published in the *Annals of Internal Medicine*, and *Injury Prevention*. I have developed a national data set of geo-coded precinct-level election results that has been used extensively in policy-oriented research related to redistricting and representation,¹ as well as with Census data from the United States and other countries.

I have been accepted and testified as an expert witness in six recent election law cases: *Romo v. Detzner*, No. 2012-CA-000412 (Fla. Cir. Ct. 2012); *Mo. State Conference of the NAACP v. Ferguson-Florissant Sch. Dist.*, No. 4:2014-CV-02077 (E.D. Mo. 2014); *Lee v. Va. State Bd. of Elections*, No. 3:15-CV-00357 (E.D. Va. 2015); *Arizona Democratic Party, et al. v. Michele Reagan, et al.*, No. 16-1065-PHX-DLR (D. Ariz. 2016); *Bethune-Hill v. Virginia State Board of Elections*, No. 3:14-cv-00852-REP-AWA-BMK (E.D. Va. 2014); and *Jacobson et al. v. Lee*, No. 4:18-cv-00262 (N.D. Fla. 2018). In addition, I recently submitted written testimony in *League of Women Voters of Florida v. Detzner*, No. 4:18-cv-002510 (N.D. Fla. 2018) and *College Democrats at the University of Michigan, et al. v. Johnson et al.*, No. 3:2018-cv-12722 (E.D. Mich. 2018). I also worked with a coalition of academics to file Amicus Briefs in the Supreme Court in *Gill v. Whitford*, No. 16-1161, and *Rucho v. Common Cause*, No. 18-422. Much of the testimony in these cases had to do with geography, voting, ballots, and election administration. My testimony in

¹ The dataset can be downloaded at <http://projects.iq.harvard.edu/eda/home>. The data can be visualized in an interactive web map, available at <http://atlas.esri.com/Atlas/VoterAtlas.html>.

Jacobson focused specifically on ballot order. I am being compensated at the rate of \$500/hour for my work in this case. My compensation is not dependent upon my conclusions in any way.

III. WHAT DO WE KNOW ABOUT BALLOT ORDER?

A large social science literature has explored the subtle psychological bias toward selecting the first option from among a set of options that is presented in visual form. This bias has been documented in voluminous research on consumer choice, test-taking, and survey response. Perhaps the largest body of research has focused on elections. Beginning in the 1960s, election researchers from a variety of countries have noticed a surprisingly common pattern: candidates that are listed first on the ballot receive a higher vote share. This is true not only in local elections and primaries, but also in high-profile national elections. In the United States, the effects appear to be largest in lower-profile races about which voters have less information.

In the vast majority of these studies, researchers have collected returns from large numbers of elections, and noted that on average over a wide range of races, the first-listed candidate received an electoral advantage. Many of these studies attempted to statistically control for other potentially confounding features of ballot order. More recently, social scientists have gone a step further in their efforts to identify the causal impact of ballot order on candidates' vote shares by looking for opportunities to draw inferences from quasi-experiments. Ideally, the researcher would be able to hold constant the names of the candidates on the ballot, and everything else about the design of the ballot, but randomly assign half of the voters to a condition in which candidate A is listed first, and the other half of the voters to a condition in which candidate B is listed first.

Because of the widespread understanding that first-listed candidates can receive an unfair advantage, some U.S. states have introduced exactly such a system, where the order of names on the ballot is rotated across precincts, counties, or state legislative districts. The goal of this

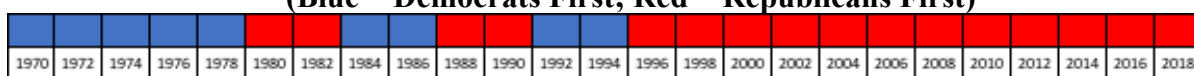
practice, of course, is to make sure that candidate A is listed first roughly as often as candidate B, but these practices have an additional advantage: they have provided researchers with the opportunity to hold everything else constant, and examine the causal impact of ballot order by comparing the vote shares of candidates A and B when they are listed first versus lower down on the ballot in precincts or counties that are otherwise similar. Indeed, a growing number of such studies conducted in Ohio, North Dakota, New Hampshire, Texas, and California have supplemented and confirmed the results of earlier studies, consistently finding advantages for first-listed candidates.²

Primacy effects have been documented in a wide range of localities, states, and countries around the globe, and in settings beyond elections. The explanation for these effects lies in the realm of human psychology and cognition, so there is no good reason to anticipate that Texas general elections would be an outlier. Nevertheless, it is useful to examine the available data from Texas general elections to see if it fits with the pattern observed elsewhere.

IV. THE IMPACT OF CHANGING BALLOT ORDER IN TEXAS

In order to quantify the potential impact of ballot order on Texas elections, it is helpful to observe variation in ballot order. Unlike the much-studied states of California and Ohio, and unlike Texas primaries, there is no variation in the order of ballots across counties, precincts, or races within election years in Texas general elections. In Texas general elections, the only useful variation is over time. Figure 1 displays the history of ballot order in Texas general elections over the last five decades.

Figure 1: Partisanship of Ballot Order in Texas General Elections, 1970-2018
(Blue = Democrats First; Red = Republicans First)



² For an extensive review of these studies, see the report filed by Dr. Jon Krosnick in this case.

Texas elections were rather uncompetitive in the 1960s and 1970s, with Democratic candidates often winning by large margins. During that period, some statewide executive and judicial elections were not contested by Republican candidates. There was a competitive period in the 1980s and 1990s, especially in gubernatorial elections, which flipped back and forth between Democratic and Republican candidates in 1978, 1982, 1986, 1990, and 1994. Since then, Texas has entered a period of Republican dominance that reached a peak in 2010. Beginning in 2012, however, Democratic vote shares have been slowly increasing once again, and statewide elections are again becoming quite competitive. This history has led to six distinct periods of ballot order since 1970.

Aggregate Data

The Texas Secretary of State publishes county-level election results going back to 1992, but to my knowledge, does not make data available for earlier years. However, aggregate results for earlier years have been archived in various yearly issues of the *Texas Almanac*. I have entered the aggregate votes for all candidates in each contested statewide race since 1970. This includes the elections at the top of the general-election ballot, including Governor, United States Senator, and President of the United States. It also includes a variety of lower-profile races including Lieutenant Governor, Attorney General, Railroad Commissioner, Treasurer (before the position was abolished in 1996), Comptroller of Public Accounts, Commissioner of the General Land Office, Commissioner of Agriculture, Supreme Court Justice, and Judge in the Texas Court of Criminal Appeals.

The first task is to examine whether, other things equal, candidates for these various offices can expect a higher vote share when they are listed first on the ballot. To explore this, I estimate a series of regression models. Each observation is a specific race in a specific year. I do not

include uncontested elections in which either the Democrats or Republicans failed to field a candidate. The outcome variable, or dependent variable, in the first model is the Democratic vote share. The key explanatory (independent) variable is an indicator variable that is 1 if the Democrat is listed first, 0 otherwise. The coefficient on this variable can be interpreted directly as the increased vote share associated with being listed first. A coefficient of .01 would indicate, for instance, that the first-listed candidate received an increased vote share of 1 percentage point.

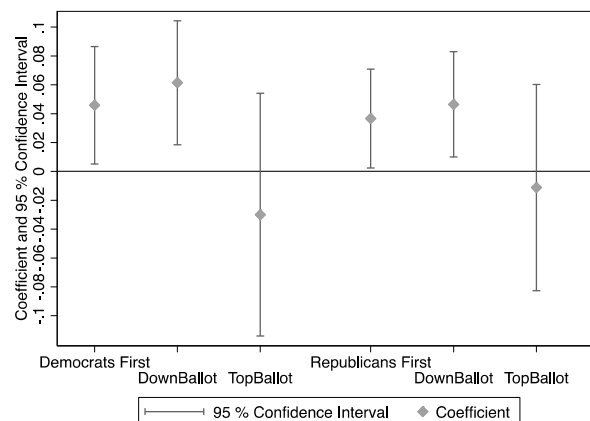
Incumbents often receive larger vote shares than challengers or otherwise similar candidates in open seats, so I include an independent variable that controls for incumbency. This variable is 0 for races in which no incumbent is running, -1 for races in which a Republican incumbent is running, and 1 for races in which a Democratic incumbent is running. This coefficient also has an easy interpretation. A coefficient of .03, for instance, would indicate that a Democratic incumbent can expect an advantage of 3 percentage points. It is possible that voters typically prefer candidates from one party or the other for specific offices, so I include a series of control variables for each office. In other words, I include a variable that is 1 for Attorney General races and 0 otherwise, another variable that is 1 for Lieutenant Governor elections and 0 otherwise, and so on. Since the dynamics and the electorate of presidential election years and mid-term years can be quite different, I also include a control variable that is 1 for mid-term years and 0 for presidential years.

Finally, as described above, support for Democrats drifted downward in Texas elections from 1970 to 2010—although in fits and starts and at different rates in different races. It is important not to mistake a general downward trend in support for Democrats over time for an impact of ballot order, especially considering the long-term shift toward Republican ballot primacy since 1994. A good way to deal with this is to find a neighboring state with a broadly similar trend

over time in partisanship, and use that partisan trend as a control variable. The trick, however, is to find such a state where election results are not also potentially affected by shifting ballot order. In Oklahoma and New Mexico, ballot order for much of this period was determined each year by a random drawing, meaning that Democrats and Republicans (as well as Libertarians and others) were listed first on all ballots one year, and another party the next. It so happens, for instance, that ballot order shifted from Democratic to Republican primacy between 1994 and 1996 in Oklahoma, just like Texas, before shifting back and forth repeatedly after that, so it is not an ideal control case. Louisiana uses an unusual French-style two-round election system, which means that “general” elections often do not take place at all, making it difficult to use as a comparison case.

Among the neighboring states, Arkansas is a good candidate for a control case. Its ballot order system is based on lotteries for each individual race in each county, so that no candidate in any race should have a statewide advantage. And the general trend in Arkansas from Democratic dominance in the early 1970s to Republican dominance in 2010, with an interregnum of strong two-party competition, is quite similar to Texas. From the Arkansas Secretary of State, I have collected data from all of the contested statewide races from 1970 to 2018, and I aggregate them to create an overall Democratic vote share. I then use this as a control variable in my regressions.

Figure 2: Coefficients and 95 Percent Confidence Intervals, Aggregate Models, 1970-2018



The results are set forth in Appendix Table A1, and the key coefficients of interest are presented visually in Figure 2. In the first set of regressions, the Democratic vote share is the dependent variable, and the key independent variable is the indicator for whether Democrats are listed first on the ballot. The coefficient is .046, indicating that across a wide range of statewide races, the vote shares of Democratic candidates are, on average, higher by 4.6 percentage points when they are listed first. Even though there are relatively few observations, this coefficient is statistically significant, meaning that it is extremely unlikely to have merged by chance. Visually, one can assess the statistical significance of the coefficients displayed in Figure 2 by noting that the lower end of the 95 percent confidence interval is above the zero line.

As described above, the literature on ballot order effects suggests that they should be larger in down-ballot races about which voters have less information. In order to assess whether this is the case, I have estimated an alternative model that allows the coefficients to vary according to whether the race is a top-ballot race (President, U.S. Senator, or Governor), or a down-ballot race (all other statewide races in the data set). The results of this alternative model are presented in the second column of Table A1, and the two coefficients of interest are displayed in Figure 2. In the races at the top of the ballot, Democratic vote shares are no different in years when they are listed first than in the years when they are listed second. (The coefficient is close to zero and the confidence intervals span both positive and negative areas on the graph). But in down-ballot races, Democratic candidates' vote shares are higher by around 6 percentage points in years when they are listed first. In other words, this model indicates that the overall effect in the first regression was, in fact, driven by the down-ballot races. One should keep in mind, however, that there are only 47 observations of presidential, gubernatorial, and Senate elections from 1970 to 2018, and many of them involved popular incumbents. In fact,

only 7 of these observations involved open seats. Thus, it is not entirely surprising that ballot order is not correlated with aggregate results in these elections.

One might imagine that since the United States has a two-party system, the coefficients would look exactly the same if we use the Republican vote share as the dependent variable, and “Republican listed first” as the independent variable. However, this is not the case, since Libertarians, Reform candidates, independents, and other parties sometimes run and receive non-trivial vote shares. Texans are perhaps especially aware of this after the 2006 gubernatorial election, when independents Carole Keeton Strayhorn and Kinky Friedman received over 30 percent of the vote between them. Because of this, it is useful to estimate identical models, but with the Republican vote share as the dependent variable. So that the interpretation is the same, I also change the sign on the incumbency variable so that 1 corresponds to the presence of a Republican incumbent in the race, and -1 corresponds to a Democratic incumbent. The results of these models are presented in Table A2 in Appendix A, and the coefficients of interest are plotted on the right-hand side of Figure 2. The overall effect of being listed first on the ballot is not very different from the models focusing on Democrats—around 3.7 percentage points. And again, the effect is driven by the down-ballot races, for which the effect is 4.6 percentage points.

County-Level Data

The Texas Secretary of State has also made county-level election returns available since 1992. These returns include not only the races discussed above, but also a whole host of additional races that take place only within specific counties or groups of counties. This includes not only races for U.S. Congress and both chambers of the state legislature, but also races for positions like members of the Texas State Board of Education, Justices in the Court of Appeals, District Judge, and Criminal District Attorney. I have assembled a county-level data set, where the observations

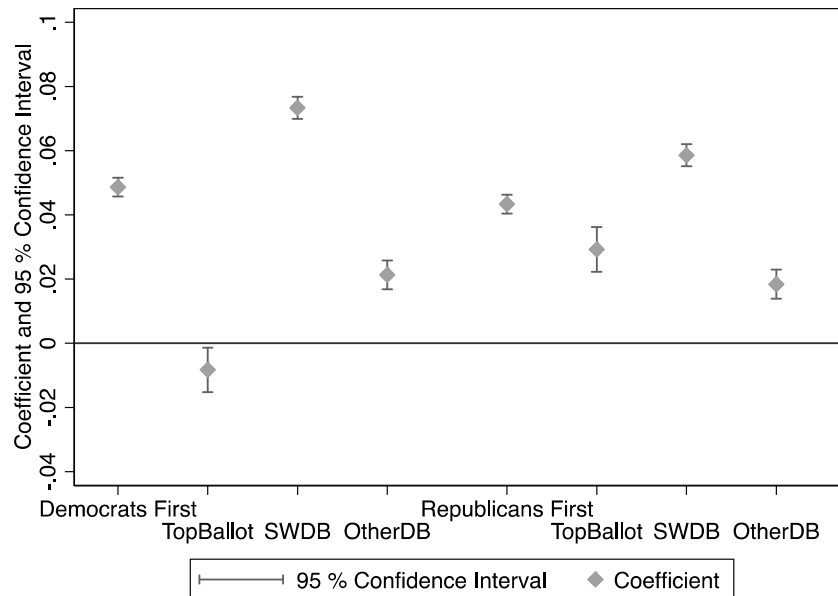
are for elections in specific races, in specific counties, in specific years.

In addition to examining a wider range of races, another advantage of using the county-level data is that there are far more observations, and they are quite heterogeneous, ranging from Democratic urban counties to very rural Republican counties, including counties that might be the home base of a statewide candidate, where he or she is a household name based on legislative or local government experience, and counties where such a candidate is unknown.

I estimate models including not only fixed effects for offices, but also including county fixed effects. This means that the results are driven by variation over time *within* counties. Using data from decennial censuses (interpolated for inter-census years), I also add control variables for within-county demographic trends. It is important to stress, however, that this analysis only covers the period since 1992, so it is effectively a within-county comparison of election results in various races in 1992 and 1994 with the results from 1996 to 2018.

I present the results in the same fashion as above. The coefficients and confidence intervals for the key variables of interest can be visualized in Figure 3, and the full results can be found in Appendix Tables A3 and A4.

Figure 3: Coefficients and 95 Percent Confidence Intervals, County-Level Models, 1992-2018



Note: Top-Ballot = Governor, President, U.S. Senator. SWDB = Statewide Down-ballot races (Attorney General, Supreme Court Justice, etc.). OtherDB = Districted races (State Legislature, State School Board, District Judge).

The results are quite similar to the aggregate analysis that went back to 1970. In the county-level analysis, when the Democratic vote share is used as the dependent variable, other things equal, we see that the Democratic vote share was 4.9 percentage points higher when Democrats were listed first. And when the Republican vote share is used as the dependent variable, the model indicates that the switch to Republican ballot primacy was associated with a 4.3 percentage point increase in the Republican vote share.

And again, I have estimated models that distinguish between top-ballot and down-ballot races, but I break the latter down into two categories. The first “down-ballot” category is the same set of statewide down-ballot (“SWDB”) races examined above. The second is an additional set of down-ballot races that are *not* statewide (“OtherDB”)—that is, all of the districted races, e.g. legislators, State School Board members, District Judges, and the like. The coefficients for each of these are presented in Figure 3. Democratic candidates for top-ballot offices did not receive

higher vote shares when they were listed first in 1992 and 1994 than in subsequent years. However, other things equal, they performed much better in down-ballot races. The coefficient indicates a difference of 7.3 percentage points for statewide down-ballot races, and 2.1 percentage points for the various districted races. When Republican vote shares are used as the dependent variable, the results indicate an improvement in the Republican vote share associated with the switch to Republican ballot primacy of 5.9 percentage points for statewide down-ballot races, and 1.8 percentage points for districted races. Additionally, the Republican vote share improved in top-ballot races as well, by 2.9 percentage points. Overall, Republican vote share was 4.3 percentage points higher when Republicans were listed first.

V. THE IMPACT OF REFORM: QUASI-EXPERIMENTAL EVIDENCE FROM NORTH CAROLINA

In Texas and in other states, there is ample evidence that the candidate who appears first on the ballot receives an electoral boost. This can translate into a long-term advantage when one party maintains this edge in several consecutive elections. But what happens if this advantage is suddenly taken away? What might happen, for instance, if Texas abruptly ended its practice of always listing the same party first?

In order to answer this question, it is useful to examine recent quasi-experimental evidence from North Carolina, which also held to the practice of listing general-election candidates in the order of the partisan vote share of the most recent gubernatorial election until very recently. As in Texas, a gubernatorial victory for a political party led to two subsequent general elections in which that party's candidates would be listed first on all general-election ballots for all races. Four years later, if the party of the governor changed, the ballot order would change uniformly for all races. This type of transition took place in North Carolina after the 2012 election. As a result, Democrats were listed first on all ballots in 2012 and Republicans were listed first on all ballots in 2016.

However, following a change in the law that replaced this practice with a modified alphabetical ordering, described in greater detail below, Republicans were listed first on only half of all ballots in 2018. Thus, North Carolina's experiment with ballot reform allows us an unusual opportunity to measure its impact.

North Carolina holds gubernatorial elections in presidential years, and there are typically no high-profile statewide elections during midterm years. I have assembled precinct-level data on presidential, gubernatorial, U.S. House, North Carolina House of Representatives, and North Carolina Senate races in the general elections of 2012 and 2016 from the North Carolina Secretary of State, and added data on the partisanship of incumbents. As noted above, in 2012 Democrats were listed first on every ballot, due to the gubernatorial victory of Bev Perdue in 2008. In 2016, Republicans were listed first on every ballot due to the 2012 victory of Pat McCrory.

Governor McCrory lost his reelection bid in 2016, which meant that Democrats were poised to be listed first in the 2018 general election. However, a few months before the election, the Republican super-majority in the North Carolina legislature passed a law adopting a modified alphabetical procedure. Specifically, the State Board of Elections and Ethics Enforcement had already held a random drawing to determine alphabetical order for primary candidates. This process determined that a name starting with "F" would get the first ballot position. Names would then cycle through the alphabet with those starting with "E" at the end. A law passed in the summer of 2018 simply applied this same procedure to the November general election.

In this way, the North Carolina legislature unwittingly set up a valuable experiment. Legislative elections were held for 50 seats in the North Carolina Senate, 120 seats in the North Carolina House of Representatives, and 13 seats in the U.S. House of Representatives in November of 2016. In that election, Republican candidates were always listed first. However, only two years

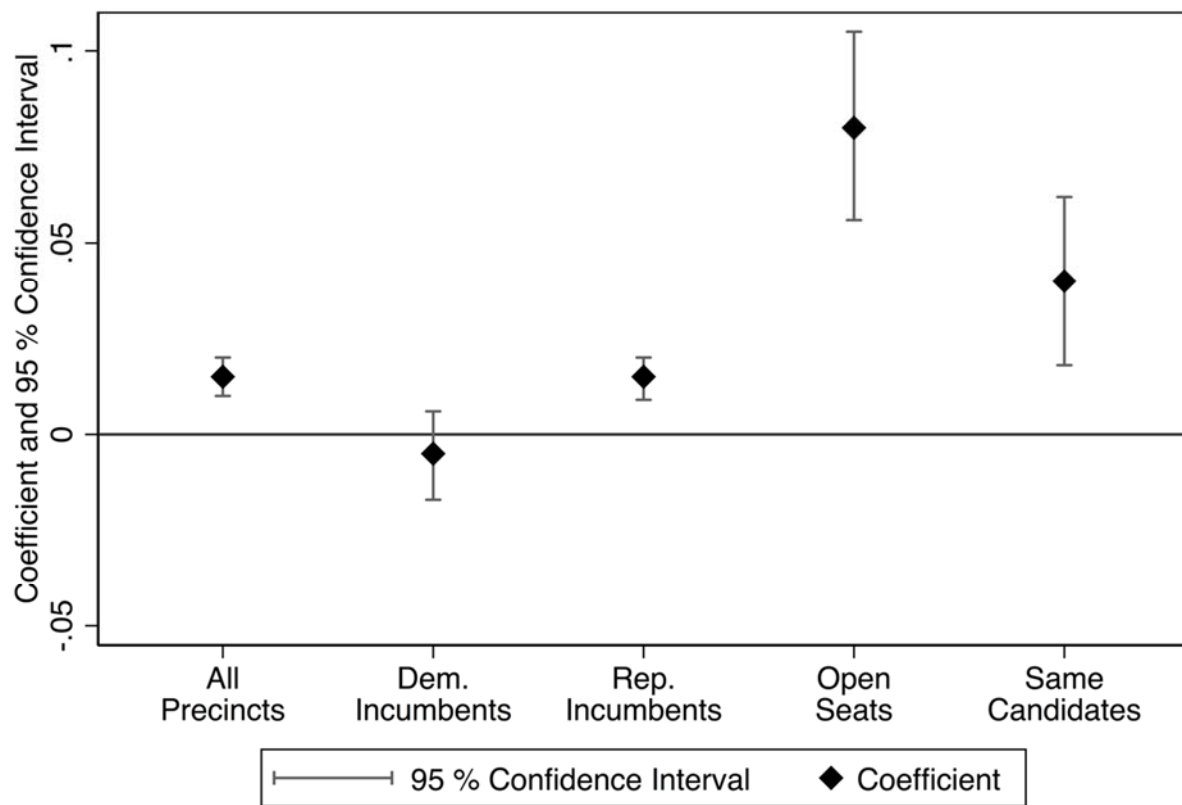
later, in November of 2018, the same legislative elections were held again, but this time, in around half of the districts, Republicans were no longer listed first. In order to examine the impact of the ballot-order reform, we can contrast the change in Democratic vote share from 2016 to 2018 in precincts where Republicans were listed first all along and in those where they lost their primacy status. In the language of experimental research, there is a control group, in which Republicans were listed first all along, and a treatment group, in which Republican primacy was removed. As in other states, there was a strong shift toward Democratic candidates throughout North Carolina from 2016 to 2018, but this is of little concern for causal inference, since we are able to contrast the *change* in electoral behavior in the treatment and control groups.

This experiment is especially useful because it allows us to get a sense for the *absolute* effect of ballot order on legislative election outcomes, rather than the *relative* effect that has been examined throughout this report. The result of this experiment is quite striking. The average contested precinct in North Carolina experienced a 3.2 percentage point shift toward the Democrats in legislative elections as part of the “blue wave” of 2018. However, the shift was much larger in precincts where Republicans were no longer listed first. The Democratic vote share increase was higher by 1.5 percentage points in the cases where the Republican was no longer listed first. This result is highly statistically significant. To establish this, I simply regress the precinct-level change in Democratic vote share on an indicator variable that is 0 if the Republican was still listed first in 2018, and 1 if the Republican was no longer listed first. The coefficient and 95 percent confidence interval are set forth on the left side of Figure 4. Further details are presented in the appendix.

This overall treatment effect of ballot order reform is calculated from a rather heterogeneous set of electoral districts, and thus masks some important differences in the strength

of the treatment effect. It is thus worthwhile to dig a little deeper into the data. Some districts involved well-known, long-serving incumbents. Others involved open seats in which the incumbent had recently retired or moved on to seek higher office. Further, there were more than twice as many incumbent Republicans running in the state legislative and U.S. Congressional races in 2018 than incumbent Democrats. And the incumbent Democrats tended to be well-known, long-serving urban representatives.

Figure 4: Regression Coefficients Indicating Impact of Change in Ballot Order on Change in Democratic Vote Share Across North Carolina Precincts, 2016 to 2018



These are coefficients from separate models focusing on different groups of precincts.

It is useful to examine the treatment effect of ballot-order reform separately for the smaller number of districts with a Democratic incumbent, and the much larger number of districts with a Republican incumbent. Figure 4 shows that in districts with a Democratic incumbent, there is no evidence of a difference between the districts where Republicans continued to be listed first, and

those where Democrats were suddenly listed first. In the much larger number of districts with a *Republican* incumbent, the treatment effect was 1.4 percentage points. That is, the increase in Democratic vote share was 1.4 percentage points higher after the reform in the precincts where Republicans were no longer listed first than in the precincts where they were still listed first.

Of particular interest are the seats where no incumbent was running, since this allows us to examine the impact of ballot order reform in a context where voters were unable to rely on the informational cues associated with incumbency and name recognition. In these districts, the impact of ballot-order reform is quite striking. The change in Democratic vote share was over 8 percentage points higher in the open-seat precincts where Republican ballot-order primacy was suddenly withdrawn.

Another interesting set of cases involve seats where the same set of two candidates ran against one another in 2016 and then lined up again for a rematch only two years later in 2018. These seats allow us to hold personality, fundraising skill, and other such candidate-specific features constant, and measure the causal impact of ballot reform. In these seats, the impact of ballot-order reform was also extremely large: almost 4 percentage points.

In sum, the North Carolina quasi-experiment shows that when ballot primacy creates a substantial advantage for the first-listed party, it can quickly dissipate when the advantage is withdrawn.

VI. CONCLUSIONS

In states with ballot order statutes like those in Texas, gubernatorial elections are extremely important, not only because they allocate control of the executive branch of state government, but also because they determine who will be listed first on all ballots in the next two general elections. A large literature demonstrates that ballot placement affects election outcomes, and this report has

presented data analysis suggesting that in Texas as well, even after accounting for partisan trends and factors like incumbency, the first-listed party receives a higher vote share, particularly in lower-profile elections that appear further down the ballot.

It is relatively straightforward to reform ballot order assignment in ways that give neither party an advantage in either high-profile or down-ballot races. Some states, like New Mexico and Oklahoma, rotate the ballot order from one year to the next in a way that should not favor either party in the long run. Other states, like Arkansas, rotate the ballot order across geographic units for each specific race, so that neither party can expect a ballot-order primacy advantage in any given year. Ohio, for example, rotates ballot order across precincts. And other states, like Louisiana and North Carolina, simply use alphabetical ordering. A recent reform in North Carolina allowed us to observe an experiment, which indicates that when a ballot-order advantage for one party is withdrawn, the impact on election results is substantial.

APPENDIX A: DETAILED RESULTS

Table A1: Aggregate Regression Results: Dependent Variable = *Democratic* Vote Share

Dependent Variable: Dem. Vote Share	Basic model	Breakdown by office type
Democrats First	0.046 (0.021)**	
Incumbency	0.052 (0.010)***	0.052 (0.009)***
Agriculture	-0.149 (0.087)*	-0.152 (0.086)*
Attorney General	-0.141 (0.087)	-0.145 (0.086)*
Comptroller	-0.158 (0.089)*	-0.161 (0.088)*
Governor	-0.170 (0.087)*	-0.150 (0.086)*
Appeals Justice	-0.225 (0.087)**	-0.228 (0.086)***
Sup. Court Justice	-0.148 (0.086)*	-0.151 (0.085)*
Land	-0.152 (0.088)*	-0.154 (0.087)*
Lt. Gov.	-0.102 (0.087)	-0.106 (0.086)
President	-0.166 (0.091)*	-0.154 (0.090)*
Railroad Commissioner	-0.129 (0.086)	-0.133 (0.085)
U.S. Senate	-0.164 (0.088)*	-0.155 (0.087)*
Midterm	-0.024 (0.021)	-0.023 (0.020)
Arkansas Aggregate Dem. Vote Share	0.191 (0.092)**	0.190 (0.091)**
Dem first X Down-ballot		0.061 (0.022)***
Dem first X Top-ballot		-0.030 (0.042)
Constant	0.516 (0.100)***	0.516 (0.099)***
R^2	0.47	0.49
N	139	139

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table A2: Aggregate Regression Results: Dependent Variable = *Republican* Vote Share

Dependent Variable: Rep. Vote Share	Basic model	Breakdown by office type
Republicans First	0.037 (0.017)**	
Incumbency	0.039 (0.008)***	0.039 (0.008)***
Agriculture	0.131 (0.073)*	0.133 (0.073)*
Attorney General	0.124 (0.073)*	0.126 (0.073)*
Comptroller	0.137	0.139

	(0.075)*	(0.075)*
Governor	0.136	0.181
	(0.073)*	(0.078)**
Appeals Justice	0.182	0.184
	(0.073)**	(0.073)**
Sup. Court Justice	0.126	0.128
	(0.072)*	(0.072)*
Land	0.127	0.128
	(0.074)*	(0.074)*
Lt. Gov.	0.087	0.090
	(0.073)	(0.073)
President	0.117	0.167
	(0.077)	(0.084)**
Railroad Commissioner	0.104	0.106
	(0.072)	(0.072)
U.S. Senate	0.155	0.207
	(0.075)**	(0.082)**
Midterm	0.018	0.017
	(0.017)	(0.017)
Arkansas Aggregate Dem. Vote Share	-0.205	-0.204
	(0.077)***	(0.077)***
Rep. first X Down-ballot		0.046
		(0.018)**
Rep. first X Top-ballot		-0.011
		(0.036)
Constant	0.454	0.445
	(0.091)***	(0.091)***
R^2	0.46	0.47
N	139	139

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$ **Table A3: County-Level Regression Results: Dependent Variable = Democratic Vote Share**

Dependent Variable: Dem. Vote Share	Basic model	Breakdown by office type
Democrats First	0.049 (0.001)***	
Incumbency	0.028 (0.001)***	0.027 (0.001)***
Agriculture	0.015 (0.003)***	0.004 (0.003)
Attorney General	0.042 (0.003)***	0.031 (0.003)***
Criminal District Attorney	0.093 (0.013)***	0.089 (0.013)***
CDA (unexpired term)	0.040 (0.089)	0.034 (0.088)
Chief Just. Ct. Appeals	0.107 (0.005)***	0.103 (0.005)***
CJU (unexpired term)	0.101 (0.009)***	0.103 (0.009)***
Comptroller	0.040 (0.003)***	0.029 (0.003)***
Chief Justice Supreme Court	0.055 (0.003)***	0.048 (0.003)***
District Attorney	0.135 (0.008)***	0.132 (0.008)***
DA (unexpired term)	0.205 (0.031)***	0.208 (0.031)***
Criminal District Judge	-0.097 (0.089)	-0.076 (0.088)
FDJ (unexpired term)	0.080 (0.051)	0.075 (0.051)

Criminal District Judge	0.104 (0.020)***	0.102 (0.020)***
District Judge	0.110 (0.004)***	0.108 (0.004)***
Family District Judge	0.039 (0.012)***	0.039 (0.012)***
District Judge (Unexpired term)	0.071 (0.015)***	0.068 (0.015)***
Governor	-0.016 (0.003)***	-0.014 (0.003)***
Court of Appeals (Unexpired term)	0.068 (0.006)***	0.067 (0.006)***
Judge, Ct. of Criminal Appeals	0.052 (0.002)***	0.041 (0.002)***
Justice, Court of Appeals	0.082 (0.003)***	0.081 (0.003)***
Justice Supreme Court	0.054 (0.002)***	0.043 (0.002)***
JSC (Unexpired Term)	0.090 (0.003)***	0.082 (0.003)***
Land	0.029 (0.003)***	0.019 (0.003)***
Lieutenant Governor	0.080 (0.003)***	0.069 (0.003)***
Board of Education	0.074 (0.003)***	0.073 (0.003)***
Presiding Judge, Ct. of Crim. Ap.	0.047 (0.003)***	0.041 (0.003)***
President	-0.009 (0.003)***	-0.006 (0.003)**
Railroad Commissioner	0.040 (0.002)***	0.029 (0.002)***
RR (Unexpired Term)	0.027 (0.006)***	0.048 (0.006)***
State Senator	0.087 (0.003)***	0.090 (0.003)***
State Representative	0.111 (0.003)***	0.108 (0.003)***
Treasurer	0.121 (0.006)***	0.141 (0.006)***
State Rep (Unexpired Term)	0.149 (0.025)***	0.155 (0.024)***
United States House	0.063 (0.002)***	0.061 (0.002)***
Midterm	-0.025 (0.001)***	-0.023 (0.001)***
Arkansas Democratic Vote Share	0.377 (0.008)***	0.375 (0.008)***
African American Share	1.833 (0.041)***	1.825 (0.041)***
Hispanic Share	-0.541 (0.018)***	-0.545 (0.018)***
Foreign Born Share	-0.087 (0.023)***	-0.095 (0.023)***
Poverty Share	0.193 (0.016)***	0.191 (0.016)***
Democrats First X Top-ballot		-0.008 (0.004)**
Democrats First X Statewide Down-ballot.		0.073 (0.002)***
Democrats First X Other Down-ballot		0.021 (0.002)***
Constant	0.187 (0.009)***	0.195 (0.008)***
R^2	0.74	0.74
N	44,942	44,942

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table A4: County-Level Regression Results: Dependent Variable = *Republican* Vote Share

Dependent Variable: Rep. Vote Share	Basic model	Breakdown by office type
Republicans First	0.043 (0.001)***	
Incumbency	0.024 (0.001)***	0.024 (0.001)***
Agriculture	-0.024 (0.003)***	-0.049 (0.004)***
Attorney General	-0.049 (0.003)***	-0.075 (0.004)***
Criminal District Attorney	-0.075 (0.013)***	-0.065 (0.013)***
CDA (unexpired term)	-0.016 (0.089)	-0.004 (0.088)
Chief Just. Ct. Appeals	-0.090 (0.005)***	-0.080 (0.006)***
CJU (unexpired term)	-0.086 (0.009)***	-0.081 (0.009)***
Comptroller	-0.049 (0.003)***	-0.074 (0.004)***
Chief Justice Supreme Court	-0.062 (0.003)***	-0.049 (0.005)***
District Attorney	-0.114 (0.008)***	-0.105 (0.008)***
DA (unexpired term)	-0.183 (0.031)***	-0.180 (0.031)***
Criminal District Judge	0.108 (0.089)	0.095 (0.088)
FDJ (unexpired term)	-0.057 (0.051)	-0.045 (0.051)
Criminal District Judge	-0.081 (0.020)***	-0.072 (0.020)***
District Judge	-0.091 (0.004)***	-0.082 (0.005)***
Family District Judge	-0.022 (0.012)*	-0.016 (0.013)
District Judge (Unexpired term)	-0.050 (0.015)***	-0.041 (0.016)***
Governor	-0.034 (0.003)***	-0.034 (0.003)***
Court of Appeals (Unexpired term)	-0.048 (0.006)***	-0.041 (0.007)***
Judge, Ct. of Criminal Appeals	-0.048 (0.002)***	-0.072 (0.004)***
Justice, Court of Appeals	-0.064 (0.003)***	-0.057 (0.004)***
Justice Supreme Court	-0.056 (0.002)***	-0.081 (0.004)***
JSC (Unexpired Term)	-0.081 (0.003)***	-0.068 (0.005)***
Land	-0.047 (0.003)***	-0.073 (0.004)***
Lieutenant Governor	-0.087 (0.003)***	-0.112 (0.004)***
Board of Education	-0.069 (0.003)***	-0.062 (0.005)***
Presiding Judge, Ct. of Crim. Ap.	-0.040 (0.003)***	-0.028 (0.005)***
President	-0.025 (0.003)***	-0.025 (0.003)***
Railroad Commissioner	-0.057 (0.002)***	-0.083 (0.004)***
RR (Unexpired Term)	-0.052 (0.006)***	-0.065 (0.007)***
State Senator	-0.076 (0.003)***	-0.073 (0.005)***

State Representative	-0.099 (0.003)***	-0.089 (0.005)***
Treasurer	-0.110 (0.006)***	-0.121 (0.007)***
State Rep (Unexpired Term)	-0.146 (0.025)***	-0.145 (0.025)***
United States House	-0.061 (0.002)***	-0.053 (0.004)***
Midterm	0.036 (0.001)***	0.035 (0.001)***
Arkansas Democratic Vote Share	-0.477 (0.008)***	-0.477 (0.008)***
African American Share	-1.855 (0.041)***	-1.848 (0.041)***
Hispanic Share	0.349 (0.018)***	0.350 (0.018)***
Foreign Born Share	0.118 (0.023)***	0.125 (0.023)***
Poverty Share	-0.138 (0.016)***	-0.136 (0.016)***
Republicans First X Top-ballot		0.029 (0.004)***
Republicans First X Statewide Down-ballot.		0.059 (0.002)***
Republicans First X Other Down-ballot		0.018 (0.002)***
Constant	0.844 (0.009)***	0.855 (0.009)***
R^2	0.73	0.73
N	44,942	44,942

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Finally, in the main text, I described simple regressions in which, for all of the precincts in North Carolina with contested legislative elections in both 2016 and 2018, I regressed the change in Democratic vote share (from 2016 to 2018) on a simple indicator variable capturing whether the precinct was in the control group—where Republican ballot order primacy was maintained from 2016 to 2018—or in the treatment group—where the Republican candidate was no longer listed first in 2018. I conduct this analysis for all contested precincts, and then, as described in the text, limit the analysis to several subsets of precincts.

Table A5: North Carolina, Impact of Ballot-Order Reform

	Coefficient	Standard Error		Lower 95 % CI	Upper 95 % CI
All contested districts					
Treatment indicator	0.015	(0.003)	***	0.01	0.02
Constant	0.025	(0.002)	***	0.02	0.03

Precincts included: 3569

Democratic incumbents only

Treatment indicator	-0.005	(0.006)		-0.02	0.01
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Constant	0.039	(0.004)	***	0.03	0.05
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Precincts included: 692

Republican incumbents only

Treatment indicator	0.015	(0.003)	***	0.01	0.02
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Constant	0.025	(0.002)	***	0.02	0.03
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Precincts included: 2485

Open seats only

Treatment indicator	0.080	(0.012)	***	0.06	0.10
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Constant	-0.029	(0.011)	**	-0.05	-0.01
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Precincts included: 392

Identical contestants only

Treatment indicator	0.040	(0.011)	***	0.02	0.06
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Constant	0.008	(0.008)		-0.01	0.02
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Precincts included: 220

**APPENDIX B:
CURRICULUM VITAE**

(attached)

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United States Citizen.

Education

Ph.D. Political Science, Yale University, 2000.

Fulbright Scholar, University of Leipzig, Germany, 1993–1994.

B.A., Political Science, University of Michigan, 1993.

Academic Positions

Professor, Department of Political Science, Stanford University, 2012–present.

Senior Fellow, Hoover Institution, Stanford University, 2012–present.

Director, Spatial Social Science Lab, Stanford University, 2012–present.

W. Glenn Campbell and Rita Ricardo-Campbell National Fellow, Hoover Institution, Stanford University, 2010–2012.

Associate Professor, Department of Political Science, Stanford University, 2007–2012.

Fellow, Center for Advanced Study in the Behavioral Sciences, Palo Alto, CA, 2006–2007.

Ford Career Development Associate Professor of Political Science, MIT, 2003–2006.

Visiting Scholar, Center for Basic Research in the Social Sciences, Harvard University, 2004.

Assistant Professor of Political Science, MIT, 1999–2003.

Instructor, Department of Political Science and School of Management, Yale University, 1997–1999.

Publications

Books

Why Cities Lose: The Deep Roots of the Urban-Rural Divide. Basic Books, 2019.

Decentralized Governance and Accountability: Academic Research and the Future of Donor Programming. Co-edited with Erik Wibbels, Cambridge University Press, 2019.

Hamilton's Paradox: The Promise and Peril of Fiscal Federalism, Cambridge University Press, 2006. Winner, Gregory Luebbert Award for Best Book in Comparative Politics, 2007.

Fiscal Decentralization and the Challenge of Hard Budget Constraints, MIT Press, 2003. Co-edited with Gunnar Eskeland and Jennie Litvack.

Peer Reviewed Journal Articles

It Takes a Village: Peer Effects and Externalities in Technology Adoption, 2019, *American Journal of Political Science* (with Romain Ferrali, Guy Grossman, and Melina Platas).

Assembly of the LongSHOT Cohort: Public Record Linkage on a Grand Scale, 2019, *Injury Prevention* (with Yifan Zhang, Erin Holsinger, Lea Prince, Sonja Swanson, Matthew Miller, Garen Wintemute, and David Studdert).

Crowdsourcing Accountability: ICT for Service Delivery, 2018, *World Development* 112: 74-87 (with Guy Grossman and Melina Platas).

Geography, Uncertainty, and Polarization, 2018, *Political Science Research and Methods* doi:10.1017/psrm.2018.12 (with Nolan McCarty, Boris Shor, Chris Tausanovitch, and Chris Warshaw).

Handgun Acquisitions in California after Two Mass Shootings, 2017, *Annals of Internal Medicine* 166(10):698-706. (with David Studdert, Yifan Zhang, Rob Hyndman, and Garen Wintemute).

Cutting Through the Thicket: Redistricting Simulations and the Detection of Partisan Gerrymanders, 2015, *Election Law Journal* 14,4:1-15 (with Jowei Chen).

The Achilles Heel of Plurality Systems: Geography and Representation in Multi-Party Democracies, 2015, *American Journal of Political Science* 59,4: 789-805 (with Ernesto Calvo). Winner, Michael Wallerstein Award for best paper in political economy, American Political Science Association.

Why has U.S. Policy Uncertainty Risen Since 1960?, 2014, *American Economic Review: Papers and Proceedings* May 2014 (with Nicholas Bloom, Brandice Canes-Wrone, Scott Baker, and Steven Davis).

Unintentional Gerrymandering: Political Geography and Electoral Bias in Legislatures, 2013, *Quarterly Journal of Political Science* 8: 239-269 (with Jowei Chen).

How Should We Measure District-Level Public Opinion on Individual Issues?, 2012, *Journal of Politics* 74, 1: 203-219 (with Chris Warshaw).

Representation and Redistribution in Federations, 2011, *Proceedings of the National Academy of Sciences* 108, 21:8601-8604 (with Tiberiu Dragu).

Dual Accountability and the Nationalization of Party Competition: Evidence from Four Federations, 2011, *Party Politics* 17, 5: 629-653 (with Erik Wibbels).

The Geographic Distribution of Political Preferences, 2010, *Annual Review of Political Science* 13: 297-340.

Fiscal Decentralization and the Business Cycle: An Empirical Study of Seven Federations, 2009, *Economics and Politics* 22,1: 37-67 (with Erik Wibbels).

Getting into the Game: Legislative Bargaining, Distributive Politics, and EU Enlargement, 2009, *Public Finance and Management* 9, 4 (with Deniz Aksoy).

The Strength of Issues: Using Multiple Measures to Gauge Preference Stability, Ideological Constraint, and Issue Voting, 2008. *American Political Science Review* 102, 2: 215-232 (with Stephen Ansolabehere and James Snyder).

Does Religion Distract the Poor? Income and Issue Voting Around the World, 2008, *Comparative Political Studies* 41, 4: 437–476 (with Ana Lorena De La O).

Purple America, 2006, *Journal of Economic Perspectives* 20,2 (Spring): 97–118 (with Stephen Ansolabehere and James Snyder).

Economic Geography and Economic Voting: Evidence from the U.S. States, 2006, *British Journal of Political Science* 36, 3: 527–47 (with Michael Ebeid).

Distributive Politics in a Federation: Electoral Strategies, Legislative Bargaining, and Government Coalitions, 2004, *Dados* 47, 3 (with Marta Arretche, in Portuguese).

Comparative Federalism and Decentralization: On Meaning and Measurement, 2004, *Comparative Politics* 36, 4: 481–500. (Portuguese version, 2005, in *Revista de Sociologia e Politica* 25).

Reviving Leviathan: Fiscal Federalism and the Growth of Government, 2003, *International Organization* 57 (Fall), 695–729.

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Strength in Numbers: Representation and Redistribution in the European Union, 2002, *European Union Politics* 3, 2: 151–175.

Does Federalism Preserve Markets? *Virginia Law Review* 83, 7 (with Susan Rose-Ackerman). Spanish version, 1999, in *Quorum* 68.

Working Papers

Federalism and Inter-regional Redistribution, Working Paper 2009/3, Institut d’Economia de Barcelona.

Representation and Regional Redistribution in Federations, Working Paper 2010/16, Institut d’Economia de Barcelona (with Tiberiu Dragu).

Chapters in Books

Decentralized Rule and Revenue, 2019, in Jonathan Rodden and Erik Wibbels, eds., *Decentralized Governance and Accountability*, Cambridge University Press.

Geography and Gridlock in the United States, 2014, in Nathaniel Persily, ed. *Solutions to Political Polarization in America*, Cambridge University Press.

Can Market Discipline Survive in the U.S. Federation?, 2013, in Daniel Nadler and Paul Peterson, eds, *The Global Debt Crisis: Haunting U.S. and European Federalism*, Brookings Press.

Market Discipline and U.S. Federalism, 2012, in Peter Conti-Brown and David A. Skeel, Jr., eds, *When States Go Broke: The Origins, Context, and Solutions for the American States in Fiscal Crisis*, Cambridge University Press.

Federalism and Inter-Regional Redistribution, 2010, in Nuria Bosch, Marta Espasa, and Albert Sole Olle, eds., *The Political Economy of Inter-Regional Fiscal Flows*, Edward Elgar.

Back to the Future: Endogenous Institutions and Comparative Politics, 2009, in Mark Lichbach and Alan Zuckerman, eds., *Comparative Politics: Rationality, Culture, and Structure* (Second Edition), Cambridge University Press.

The Political Economy of Federalism, 2006, in Barry Weingast and Donald Wittman, eds., *Oxford Handbook of Political Economy*, Oxford University Press.

Fiscal Discipline in Federations: Germany and the EMU, 2006, in Peter Wierds, Servaas Deroose, Elena Flores and Alessandro Turrini, eds., *Fiscal Policy Surveillance in Europe*, Palgrave MacMillan.

The Political Economy of Pro-cyclical Decentralised Finance (with Erik Wibbels), 2006, in Peter Wierds, Servaas Deroose, Elena Flores and Alessandro Turrini, eds., *Fiscal Policy Surveillance in Europe*, Palgrave MacMillan.

Globalization and Fiscal Decentralization, (with Geoffrey Garrett), 2003, in Miles Kahler and David Lake, eds., *Governance in a Global Economy: Political Authority in Transition*, Princeton University Press: 87-109. (Updated version, 2007, in David Cameron, Gustav Ranis, and Annalisa Zinn, eds., *Globalization and Self-Determination: Is the Nation-State under Siege?* Routledge.)

Introduction and Overview (Chapter 1), 2003, in Rodden et al., *Fiscal Decentralization and the Challenge of Hard Budget Constraints* (see above).

Soft Budget Constraints and German Federalism (Chapter 5), 2003, in Rodden, et al, *Fiscal Decentralization and the Challenge of Hard Budget Constraints* (see above).

Federalism and Bailouts in Brazil (Chapter 7), 2003, in Rodden, et al., *Fiscal Decentralization and the Challenge of Hard Budget Constraints* (see above).

Lessons and Conclusions (Chapter 13), 2003, in Rodden, et al., *Fiscal Decentralization and the Challenge of Hard Budget Constraints* (see above).

Online Interactive Visualization

Stanford Election Atlas, 2012 (collaboration with Stephen Ansolabehere at Harvard and Jim Herries at ESRI)

Other Publications

An Evolutionary Path for the European Monetary Fund? A Comparative Perspective, 2017, Briefing paper for the Economic and Financial Affairs Committee of the European Parliament.

Representation and Regional Redistribution in Federations: A Research Report, 2009, in *World Report on Fiscal Federalism*, Institut d'Economia de Barcelona.

On the Migration of Fiscal Sovereignty, 2004, *PS: Political Science and Politics* July, 2004: 427-431.

Decentralization and the Challenge of Hard Budget Constraints, *PREM Note 41*, Poverty Reduction and Economic Management Unit, World Bank, Washington, D.C. (July).

Decentralization and Hard Budget Constraints, *APSA-CP* (Newsletter of the Organized Section in Comparative Politics, American Political Science Association) 11:1 (with Jennie Litvack).

Book Review of *The Government of Money* by Peter Johnson, *Comparative Political Studies* 32,7: 897-900.

Fellowships and Honors

Fund for a Safer Future, Longitudinal Study of Handgun Ownership and Transfer (LongSHOT), GA004696, 2017-2018.

Stanford Institute for Innovation in Developing Economies, Innovation and Entrepreneurship research grant, 2015.

Michael Wallerstein Award for best paper in political economy, American Political Science Association, 2016.

Common Cause Gerrymandering Standard Writing Competition, 2015.

General support grant from the Hewlett Foundation for Spatial Social Science Lab, 2014.

Fellow, Institute for Research in the Social Sciences, Stanford University, 2012.

Sloan Foundation, grant for assembly of geo-referenced precinct-level electoral data set (with Stephen Ansolabehere and James Snyder), 2009-2011.

Hoagland Award Fund for Innovations in Undergraduate Teaching, Stanford University, 2009.

W. Glenn Campbell and Rita Ricardo-Campbell National Fellow, Hoover Institution, Stanford University, beginning Fall 2010.

Research Grant on Fiscal Federalism, Institut d'Economia de Barcelona, 2009.

Fellow, Institute for Research in the Social Sciences, Stanford University, 2008.

United Postal Service Foundation grant for study of the spatial distribution of income in cities, 2008.

Gregory Luebbert Award for Best Book in Comparative Politics, 2007.

Fellow, Center for Advanced Study in the Behavioral Sciences, 2006-2007.

National Science Foundation grant for assembly of cross-national provincial-level dataset on elections, public finance, and government composition, 2003-2004 (with Erik Wibbels).

MIT Dean's Fund and School of Humanities, Arts, and Social Sciences Research Funds.

Funding from DAAD (German Academic Exchange Service), MIT, and Harvard EU Center to organize the conference, "European Fiscal Federalism in Comparative Perspective," held at Harvard University, November 4, 2000.

Canadian Studies Fellowship (Canadian Federal Government), 1996-1997.

Prize Teaching Fellowship, Yale University, 1998-1999.

Fulbright Grant, University of Leipzig, Germany, 1993-1994.

Michigan Association of Governing Boards Award, one of two top graduating students at the University of Michigan, 1993.

W. J. Bryan Prize, top graduating senior in political science department at the University of Michigan, 1993.

Other Professional Activities

International Advisory Committee, Center for Metropolitan Studies, Sao Paulo, Brazil, 2006–2010.

Selection committee, Mancur Olson Prize awarded by the American Political Science Association Political Economy Section for the best dissertation in the field of political economy.

Selection committee, Gregory Luebbert Best Book Award.

Selection committee, William Anderson Prize, awarded by the American Political Science Association for the best dissertation in the field of federalism and intergovernmental relations.

Courses

Undergraduate

Politics, Economics, and Democracy

Introduction to Comparative Politics

Introduction to Political Science

Political Science Scope and Methods

Institutional Economics

Spatial Approaches to Social Science

Graduate

Political Economy of Institutions

Federalism and Fiscal Decentralization

Politics and Geography

Consulting

2017. Economic and Financial Affairs Committee of the European Parliament.

2016. Briefing paper for the World Bank on fiscal federalism in Brazil.

2013-2018: Principal Investigator, SMS for Better Governance (a collaborative project involving USAID, Social Impact, and UNICEF in Arua, Uganda).

2019: Written expert testimony in *McLemore, Holmes, Robinson, and Woullard v. Hosemann*, United States District Court, Mississippi.

2019: Expert witness in *Nancy Corola Jacobson v. Detzner*, United States District Court, Florida.

2018: Written expert testimony in *League of Women Voters of Florida v. Detzner* No. 4:18-cv-002510, United States District Court, Florida.

2018: Written expert testimony in *College Democrats of the University of Michigan, et al. v. Johnson, et al.*, United States District Court for the Eastern District of Michigan.

2017: Expert witness in *Bethune-Hill v. Virginia Board of Elections*, No. 3:14-CV-00852, United States District Court for the Eastern District of Virginia.

2017: Expert witness in *Arizona Democratic Party, et al. v. Reagan, et al.*, No. 2:16-CV-01065, United States District Court for Arizona.

2016: Expert witness in *Lee v. Virginia Board of Elections*, 3:15-cv-357, United States District Court for the Eastern District of Virginia, Richmond Division.

2016: Expert witness in *Missouri NAACP v. Ferguson-Florissant School District*, United States District Court for the Eastern District of Missouri, Eastern Division.

2014-2015: Written expert testimony in *League of Women Voters of Florida et al. v. Detzner, et al.*, 2012-CA-002842 in Florida Circuit Court, Leon County (Florida Senate redistricting case).

2013-2014: Expert witness in *Romo v Detzner*, 2012-CA-000412 in Florida Circuit Court, Leon County (Florida Congressional redistricting case).

2011-2014: Consultation with investment groups and hedge funds on European debt crisis.

2011-2014: Lead Outcome Expert, Democracy and Governance, USAID and Social Impact.

2010: USAID, Review of USAID analysis of decentralization in Africa.

2006-2009: World Bank, Independent Evaluations Group. Undertook evaluations of World Bank decentralization and safety net programs.

2008-2011: International Monetary Fund Institute. Designed and taught course on fiscal federalism.

1998-2003: World Bank, Poverty Reduction and Economic Management Unit. Consultant for *World Development Report*, lecturer for training courses, participant in working group for assembly of decentralization data, director of multi-country study of fiscal discipline in decentralized countries, collaborator on review of subnational adjustment lending.

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